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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/044,934 | 01/15/2002 | Griffith S. Evans | P56315 | 1494 |

7590 04/08/2005

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EXAMINER

RIVELL, JOHN A

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

3753

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/044,934 | Applicant(s) EVANS, GRIFFITH S. | |
| | Examiner John Rivell | Art Unit 3753 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/18/05 (amendment).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16, 18, 19, 21, 23-27 and 30-47 is/are pending in the application.
 4a) Of the above claim(s) 1-12 and 31-41 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-27 is/are allowed.
- 6) ☒ Claim(s) 13, 14, 16, 18, 19, 21 and 42-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Applicant's arguments filed January 18, 2005 have been fully considered but they are not persuasive.

Claims 15, 17, 20, 22, 28, 29 and 48-50 have been canceled. Claims 1-14, 16, 18, 19, 21, 23-27, and 30-47 remain pending.

Claims 1-12 and 30-41 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 19, 2004.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 42-46 are rejected under 35 U.S.C. §102 (b) as being anticipated by Dean et al. (cited by applicant).

Regarding claim 42, when one makes and/or uses the device of Dean et al. one necessarily performs “a method for restraining free play in an apparatus, comprising the steps of: providing a mount (body 12) having an aperture (read on the aperture receiving extension stem at 29); providing a piston (25) adjacent to the mount (12), said piston being of a shape for defining a movement direction of the piston; and inserting an end of a shear pin (29) into the aperture of the mount (12, as illustrated in the figure) and connecting another end of the shear pin (29) to the piston (25) through a sleeve

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(read as the receiving flanges 27, 31) so as to couple said mount (12) to said piston (25) thereby restraining the piston (25) relative to the mount (12)” as recited.

Regarding claim 43, one also necessarily performs the method including “the step of: with said piston being restrained relative to the mount (by pin 29), striking a strikable part (nipples 38/39 and/or nipples 48/49) with a hammer region (the right side of flange 37 and/or the right side of flange 47) formed on the piston (25) in the direction of the piston by traversing the piston through a gap (shown as the “gap” between the right side of flange 37 and the left edge of nipple 38 and/or 39 and the even larger illustrated “gap” between the right side of flange 47 and nipples 48 and/or 49) separating the hammer region from the strikable part” as recited.

Regarding claim 44, one also necessarily performs the method including “separating the strikable part (38, 39 and/or 48, 49)) from a stationary part (41, 42 and/or 51, 52) when the strikable part is struck by the hammer region of the piston” as recited.

Regarding claims 45 and 46, one also necessarily performs the method including “shearing the shear pin (29) by motion of the piston (25)” as recited.

Regarding applicants remarks as they may apply to the above, the argument concerning the recited “gap” and timing is unpersuasive in view of that which is explicitly illustrated in the figure of Dean et al.

For example, in Dean et al, “the strikable part (nipples 38, 39, 48 and/or 49) is provided to seal a flowpath gas (e.g. air) in the apparatus in question, the strikable part being connected to a stationary part (valve bodies 431, 42, 51 and/or 52) by a

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shearable link” such that the nipples 38, 39, 48 and/or 49 are sheared off by the flange 37 and/or 47. “A shear pin (29) which retains a piston (25) in place is constructed so as to be shearable”. “As a result, gas does not flow in the apparatus when the shear pin (29) is initially sheared (because the nipples 38, 39, 48, 39 have not been sheared yet), but gas does flow in the apparatus when both the shear pin and the shearable link are sheared, and the strikable part is separated from the stationary part” as argued.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 14, 16, 18, 19, 21 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dean et al.

The patent to Dean et al. discloses “an apparatus, comprising: a mount (body 12) having an aperture (receiving shear pin extension 29); a piston (25) adjacent to said mount and having an aperture (defined as the space between flanges 27 and 31 receiving the remainder of shear pin extension at 29), said piston being of a shape for defining a movement direction of the piston; a shear pin (29) having one end press fit into the aperture in said mount (12) and another end inserted into the aperture in said piston, said shear pin (29) restraining the piston (25) relative to the mount (12); a hammer region (the right facing face of flange 37 and/or the right facing face of flange 47) formed on said piston and located in the movement direction of said piston; a strikable part (nipples 38, 38, 48 and/or 49) mounted in the movement direction of the piston from said hammer region and separated from the hammer region by a gap (as illustrated in the figure there is clearly a “gap” between the right side face of flange 37

and nipples 38, 39 as well as a “gap” between the right side face of flange 47 and nipples 48, 49), said strikable part sealing a flowpath (the flow path with valve bodies 41, 42, 51, 52) of gas (air) in said apparatus, said hammer region striking said strikable part upon movement of the piston in the movement direction through said gap; and a stationary part (read as either one of valve bodies 41, 42, 51, 52) connected to said strikable part (nipples 38, 39, 48, and/or 49) by a shearable link (read as the thin wall section connecting the nipples 38, 39, 48, 49 to their respective valve bodies 41, 42, 51, 52 which is eventually sheared by flanges 37, 47) said strikable part (nipples 38, 39, 48, 49) being separated from said stationary part (valve bodies 41, 42, 51, 52, respectively) upon being struck by said hammer region (the right facing face of flange 37 and/or the right facing face of flange 47) with an input force for shearing said shearable link; said shear pin (29) being constructed to be shearable... so that the gas does not flow in the apparatus when said shear pin is initially sheared but gas does flow when both said shear pin and said shearable link are sheared and said strikable part is separated from said stationary part” as recited in claim 13.

Thus the patent to Dean et al. discloses all the claimed features with the exception of having the “shear pin being constructed to be shearable with less input force than the input force for shearing said shearable link”.

It is clear that the shear pin 29 and the shearable part at nipples 38, 39, 48, and 49 require a value of force in order to shear. It is clear that the value of force required to shear the pin could be less than, equal to or greater than the value of force required to shear nipples 38, 39, 48, 49. In light of the operation of the device of Dean et al. it is clear that the shear pin 29 only need to hold the piston in place before actuating the pyrotechnics at 15. In optimizing the operating characteristics of the device then it

appears that the value of the shear force of the pin need only be a minimum amount to hold the piston 25 in place prior to actuation.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ in Dean et al a shear pin in which the value of shear force required to shear the pin 29 is less than the value of force required to shear the nipples 38, 39, 48, 39, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 14, in Dean et al., "said strikable part (nipples 38, 39 48 and/or 49 are) mounted to said mount (12)" as recited.

Regarding claim 16, in Dean et al., "said stationary part (valve bodies 41, 42, 51, 52 are) connected to said mount (12)" as recited.

Regarding claim 18, Dean et al. discloses "an apparatus comprising a mount (12) having an aperture (receiving the shear in extension at 29); a piston (25) adjacent to said mount (12) and having an aperture (defined as the space between flanges 27 and 31), said piston being of a shape for defining a movement direction of the piston; a shear pin (29) having one end inserted into the aperture in said mount (as illustrated in the figure) and another end inserted into the aperture in said piston, said shear pin (29) restraining the piston relative to the mount; a hammer region (the right facing face of flange 37 and/or the right facing face of flange 47) formed on said piston (25) and located in the movement direction of said piston; a strikable part (nipples 38, 39, 48 and/or 49) mounted in the movement direction of the piston from said hammer region and separated from the hammer region by a gap (as illustrated in the figure there is clearly a "gap" between the right side face of flange 37 and nipples 38, 39 as well as a "gap" between the right side face of flange 47 and nipples 48, 49), said strikable part

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sealing a flowpath (the flow path with valve bodies 41, 42, 51, 52) of gas (air) in said apparatus, said hammer region striking said strikable part upon movement of the piston in the movement direction through said gap; and said shear pin (29) being spaced apart relation from said strikable part in the movement direction of said piston; and a stationary part (read as either one of valve bodies 41, 42, 51, 52) connected to said strikable part (nipples 38, 39, 48, and/or 49) by a shearable link (read as the thin wall section connecting the nipples 38, 39, 48, 49 to their respective valve bodies 41, 42, 51, 52 which is eventually sheared by flanges 37, 47) said strikable part (nipples 38, 39, 48, 49) being separated from said stationary part (valve bodies 41, 42, 51, 52, respectively) upon being struck by said hammer region (the right facing face of flange 37 and/or the right facing face of flange 47) with an input force for shearing said shearable link; said shear pin (29) being constructed to be shearable... so that the gas does not flow in the apparatus when said shear pin is initially sheared but gas does flow when both said shear pin and said shearable link are sheared and said strikable part is separated from said stationary part" as recited.

Thus the patent to Dean et al. discloses all the claimed features with the exception of having the "shear pin being constructed to be shearable with less input force than the input force for shearing said shearable link".

It is clear that the shear pin 29 and the shearable part at nipples 38, 39, 48, and 49 require a value of force in order to shear. It is clear that the value of force required to shear the pin could be less than, equal to or greater than the value of force required to shear nipples 38, 39, 48, 49. In light of the operation of the device of Dean et al. it is clear that the shear pin 29 only need to hold the piston in place before actuating the pyrotechnics at 15. In optimizing the operating characteristics of the device then it

appears that the value of the shear force of the pin need only be a minimum amount to hold the piston 25 in place prior to actuation.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ in Dean et al a shear pin in which the value of shear force required to shear the pin 29 is less than the value of force required to shear the nipples 38, 39, 48, 39, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 19, in Dean et al., "said strikable part (nipples 38, 39, 48 and/or 49 are) mounted to said mount (12)" as recited.

Regarding claim 21, in Dean et al., "said stationary part (valve bodies 41, 42, 51 52 are) connected to said mount (12)" as recited.

Regarding claim 47, when one makes and/or uses the device of Dean et a., one necessarily performs "a method for the restraining free play in an apparatus, comprising the steps of: providing a mount (12); providing a piston (25) adjacent to the mount, the piston being of a shape for defining a movement direction of the piston; press fitting an end of a shear pin (29) into the mount (12) and coupling another end of the shear pin to said piston (between flanges 27, 31) for restraining the piston relative to the mount; shearing the shear pin (29) by motion of the piston (25); striking s strikable part (nipples 38, 39, 48, 49) mounted in the movement direction of the piston by a hammer region (the right facing face of flange 37 and/or the right facing face of flange 47) formed on the piston (25) by moving the piston through a gap (as illustrated in the figure there is clearly a "gap" between the right side face of flange 37 and nipples 38, 39 as well as a "gap" between the right side face of flange 47 and nipples 48, 49) separating the hammer region and the strikable part; and separating the strikable part (nipples 38, 39,

48, 49) from a stationary part (valve bodies 41, 42, 51, 52) when the strikable part is struck by the hammer region; wherein the strikable part (nipples 38, 39, 48, 49) seals a flowpath (the flow path with valve bodies 41, 42, 51, 52) of gas (air) with apparatus until separated from the stationary part; and wherein the shear pin (29) is sheared by less force (as optimized) than is required to separate the strikable part (nipples 38, 39, 48, 49) from the stationary part (valve bodies 41, 42, 51, 52) so that the gas does not flow through the flowpath when the shear pin (29) is initially sheared, but only flows through the flowpath when the strikable part (nipples 38, 39, 48, 49) is separated from the stationary part (valve bodies 41, 42, 51, 52) a certain amount of time (by reason of the "gap" traveled) after shearing of the shear pin" as recited.

Regarding applicants remarks, the argument concerning the recited "gap" and timing is unpersuasive in view of that which is explicitly illustrated in the figure of Dean et al.

For example, in Dean et al, "the strikable part (nipples 38, 39, 48 and/or 49) is provided to seal a flowpath gas (e.g. air) in the apparatus in question, the strikable part being connected to a stationary part (valve bodies 431, 42, 51 and/or 52) by a shearable link" such that the nipples 38, 39, 48 and/or 49 are sheared off by the flange 37 and/or 47. "A shear pin (29) which retains a piston (25) in place is constructed so as to be shearable". "As a result, gas does not flow in the apparatus when the shear pin (29) is initially sheared (because the nipples 38, 39, 48, 39 have not been sheared yet), but gas does flow in the apparatus when both the shear pin and the shearable link are sheared, and the strikable part is separated from the stationary part" as argued.

Claims 23-27 are allowed.

This application contains claims 1-12 and 30-41 drawn to an invention nonelected with traverse in the reply filed on May 19, 2004. A complete reply to the

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final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

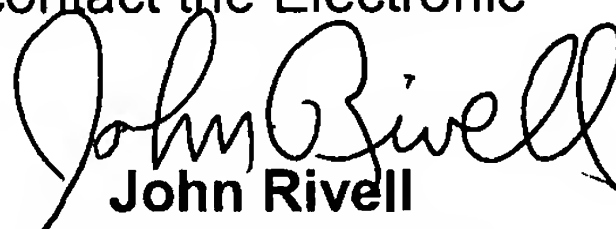
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Rivell whose telephone number is (571) 272-4918. The examiner can normally be reached on Mon.-Thur. from 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John Rivell
Primary Examiner
Art Unit 3753

j.r.